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Advances in Cell Line Engineering and Protein Expression Strategies

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Advances in Cell Line Engineering and Protein Expression Strategies

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Scope: Despite the wide use of CHO cells it has been a challenge to optimize production of biologics beyond screening and upstream process improvements. This paradigm is changing with the maturation of “omics” and gene editing techniques. The industry is experiencing a renewed interest in pioneering efforts to better understand CHO cells and engineer drug manufacturing productivity and quality. This workshop will focus on sharing the latest concepts in automation in cell line development, engineering for product quality and process performance as well as the strategies for expressing novel protein formats. The discussion will span many topics including,

- Current state of CHO genome sequences
- Genome editing technologies
- Engineered CHO cell lines, including contaminant-free CHO cell lines
- Metabolism maps
- Targeted integration

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- **Agenda:**
  - 20min opener and survey results
  - 25min table discussion on selected topics
  - 45min table read out and open discussion
    - Students to help in discussions, taking notes

- **Philosophy:**
  - Work as table groups on different topics
  - Opportunity to interact with new people
  - Seek out different expertise and perspectives
  - Have plenty of time for discussion
  - Share outputs

Topics for tables

1. Host cell line engineering
2. "omics" technologies
3. Transgene ‘mutation’ screening
4. CLD for continuous processing
5. Synthetic biology CLD strategies
6. Clonality for legacy cell lines
7. Targeted/inducible expression systems
8. Automation & data management
9. New formats and non-traditional therapies
10. Timeline acceleration
11. CHO alternatives and cell-free systems

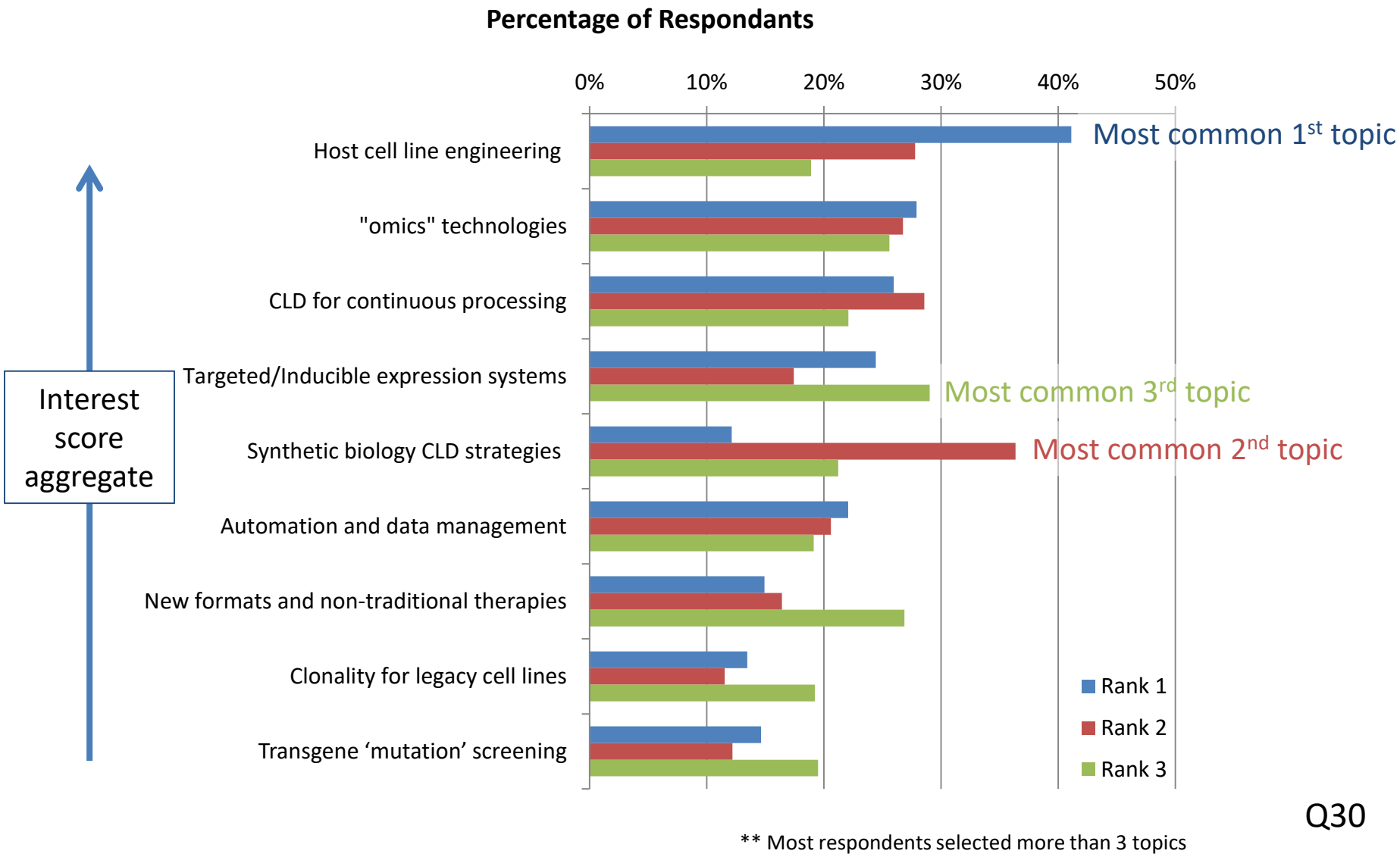
Potential discussion points to be distributed to tables.

Questions to discuss and read out

- Each table is listed with a topic and potential discussion points.
- Please select a table/topic that you would like to discuss.
- Discuss topics and prepare a synopsis for sharing with the entire group.

- Additional questions if you run out:
  - What other pain points are you experiencing?
  - What are we missing in the topic list?
- Suggestions for each table
  - Roundtable introductions
  - Define roles
    - Scribe, Timekeeper, Presenter

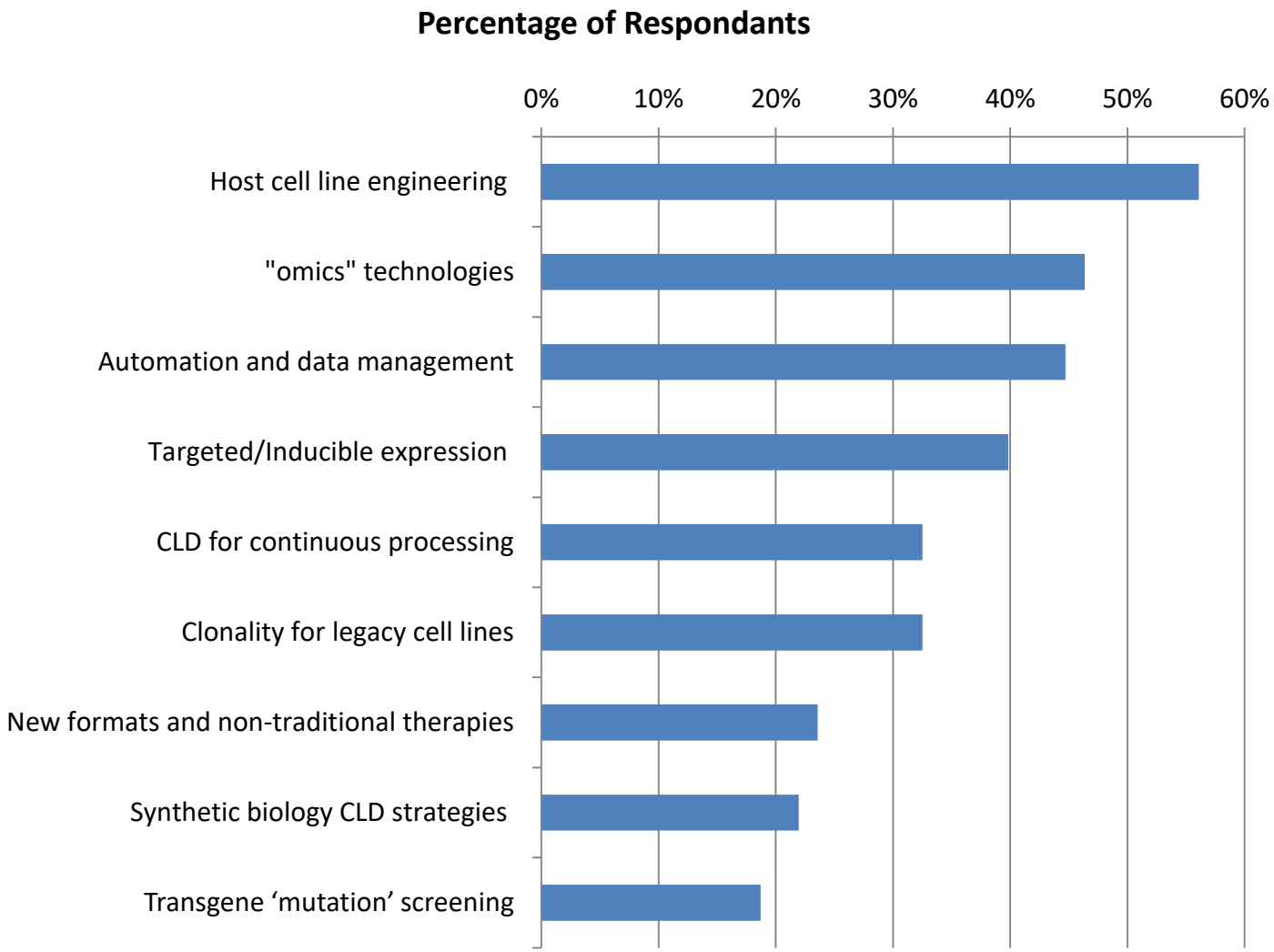
Please rank the 3 topics of greatest interest to you



Q30

** Most respondents selected more than 3 topics

Which of the above topics are you working on?



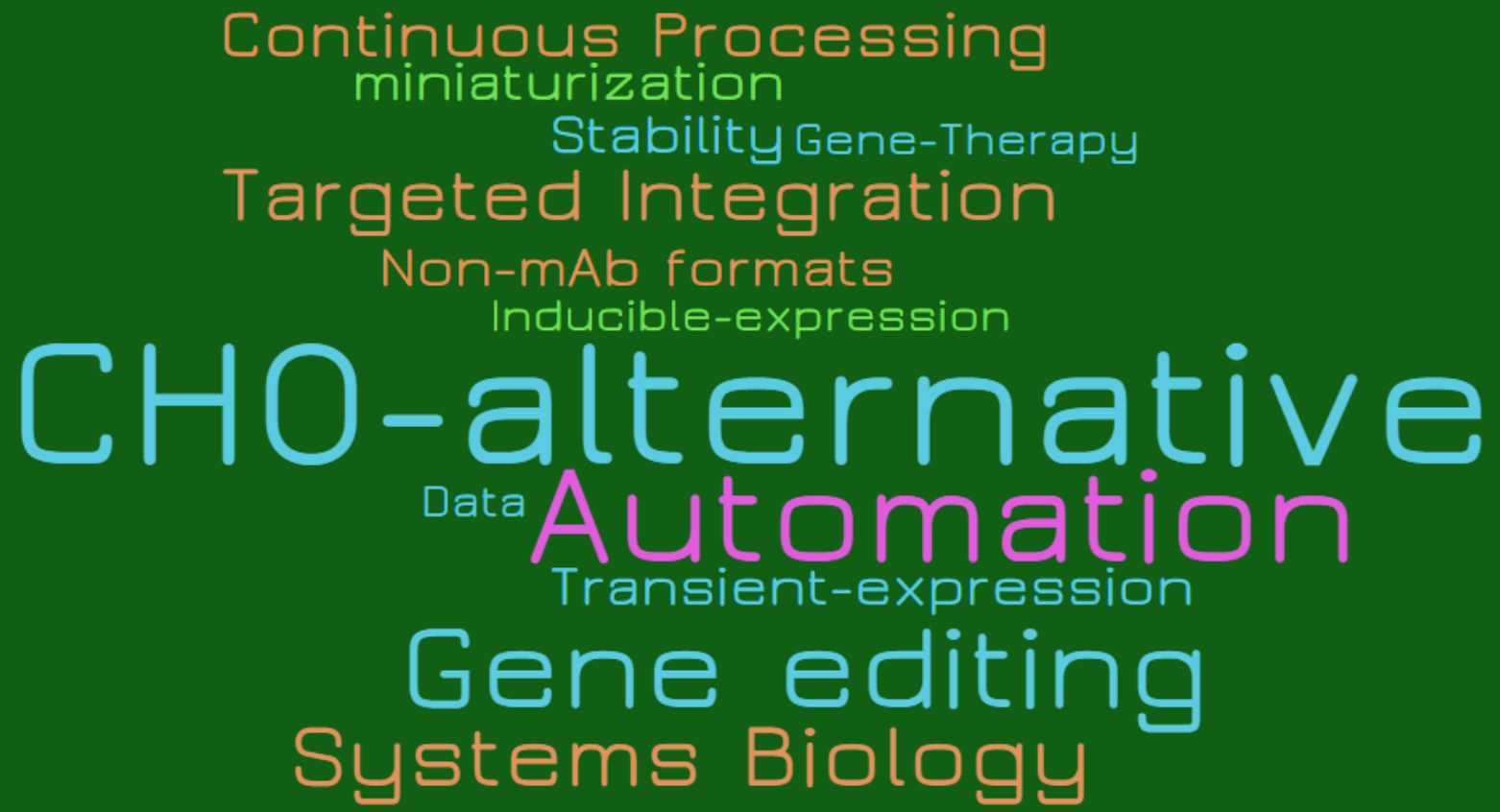
Q31

** Most respondents selected more than 3 topics

In the next 5 years, what do you think will be the biggest challenge for stable cell line development?

Q32

In the next 5 years, what could be disruptive technologies for cell line and process development?



Q33

Teaser

- Share your challenges and learn from others about advances in cell line engineering and expression strategies. Win a prize for correctly guessing the greatest challenge to cell line development and the most anticipated disruptive technology!